

Appl. No. 09/932,430
Amdt. dated Jul. 23, 2003
Reply to Office Action of Apr. 23, 2003

Listing of Claims:

Claims 1-12 (canceled).

Claim 13 (currently amended): A method of manufacturing a golf club head having a loft angle comprising:

forming a unitary body having a crown, a skirt, and a sole defining a front opening;

forming a striking plate of a material having a hardness of at least 30 HRC, a percent elongation of at least 7%, a density of less than about 5 g/cc, and a maximum thickness of less than about 2.2 mm, said crown having a thickness of less than about 0.8 mm over at least a crown transition distance of about 20 mm measured rearwardly from the front opening, said sole having a thickness of less than about 1.0 mm over at least a sole transition distance of about 20 mm measured rearwardly from the front opening; and

attaching said striking plate to said front opening of said body;

wherein said golf club head has a coefficient of restitution of at least about 0.85 if said loft angle exceeds 12 degrees and at least about 0.87 if said loft angle is 12 degrees or less.

Claim 14 (original): The method of claim 13, wherein said attaching of said striking plate comprises welding.

Claim 15 (original): The method of claim 13, wherein said forming comprises cold forming constituting at least about 30% cold working of said striking plate.

Claim 16 (original): The method of claim 13, and further comprising integrally forming a thickened plate on an interior surface of said sole, to add between 15 and 25 grams to the mass of said golf club head.

Claim 17 (original): The method of claim 13, and further comprising attaching a weight member to an interior surface of said sole, to add between 15 and 25 grams to the mass of said golf club head.

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Claim 18 (currently amended): A method of manufacturing a golf club head, comprising the steps of:

casting a unitary body of a titanium alloy, said body having a crown, a skirt, and a sole defining a front opening, said crown having a thickness of about 0.7 mm, said sole having a thickness of about 0.9 mm;

providing a weight member of between 18 to 22 grams to said sole of said body;

B cold forming a striking plate of a beta-type titanium alloy to have a hardness of at least 30 HRC and a percent elongation of at least 7%, said striking plate having a maximum thickness of between 1.1 and 1.8 mm; and

welding said striking plate to said front opening of said body;

wherein said golf club head has a coefficient of restitution of at least 0.88.

Claim 19 (original): The method of claim 18, wherein said striking plate is formed of a titanium alloy substantially comprising by weight about 4% aluminum, 20% vanadium, and 1% tin.

Claim 20 (original): The method of claim 18, wherein said cold forming comprises at least 30% cold working of said striking plate.

Claim 21 (original): The method of claim 20, wherein said cold forming is performed to create a peripheral thickness of said striking plate that is about 0.5 mm less than a thickness at a center of said striking plate

Claim 22 (canceled).

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Claim 23 (currently amended): A method of manufacturing a golf club head, comprising:

casting a unitary body of a titanium alloy, said body having a crown, a skirt, and a sole defining a front opening, said crown having a thickness of about 0.7 mm and said sole having a thickness of about 0.9 mm;

providing a weight member of between 18 to 22 grams to said sole of said body;

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cold forming a striking plate of an alpha-beta-type titanium alloy to have a hardness of at least 30 HRC, a percent elongation of at least 7%, and a maximum thickness of about 1.7 mm;
and

welding said striking plate to said front opening of said body;

wherein said golf club head has a coefficient of restitution of at least 0.88.

Claims 24-29 (canceled).

Claim 30 (currently amended): A method of manufacturing a golf club head, comprising:

casting a unitary body of a titanium alloy, the body having a crown, a skirt and a sole defining a front opening, the crown having a ~~substantially constant~~ thickness of less than 0.8 mm over at least a crown transition distance of about 20 mm measured rearwardly from the front opening, and the sole having a thickness of less than 1.0 mm;

providing a weight member of between 15 grams to 25 grams on the sole of the body;

forming a striking plate having a hardness of at least 30 HRC and a percent elongation of about 7%, the striking plate having a density of less than 5 g/cc, the striking plate having a thickness of between 1.1 and 1.8 mm in a central region thereof, and

welding the striking plate to the front opening of the body, wherein the golf club head has a volume of at least 300 cc.

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Claim 31 (previously presented): The method of claim 30, wherein the golf club head has a volume of at least 400 cc.

Claim 32 (previously presented): The method of claim 30, wherein the striking plate has a height of at least 45 mm.

Claim 33 (previously presented): The method of claim 30, wherein the striking plate is formed having a thickness along its periphery that is at least 0.5 mm less than the thickness at the striking plate's geometric center.

Claim 34 (previously presented): The method of claim 30, wherein providing the weight member is performed as part of casting the body, such that the weight member is integral with the sole of the body.

Claim 35 (previously presented): The method of claim 30, wherein providing the weight member is performed separately from casting the body and includes attaching the weight member to the sole of the body.

Claim 36 (new): The method of claim 30, wherein the striking plate is welded to the front opening of the body such that the body and the striking plate are angled relative to each other about the weld joint.

Claim 37 (new): The method of claim 30, wherein the striking plate is formed having a maximum thickness less than about 2.2 mm.

Claim 38 (new): The method of claim 37, wherein the striking plate is formed having a maximum thickness between about 2.0 mm and 2.2 mm.